WAHA GLEN WATER DISTRICT (PWS 2350030)
SOURCE WATER ASSESSMENT FINAL REPORT

February 4, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Source Water Assessment for Waha Glen Water District, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Waha Glen Water District drinking water system consists of one well. Well #1 automatically rates high susceptibility to inorganic, volatile organic, synthetic organic, and microbial contaminants due to the presence of a private road within 50 feet of the wellhead. If this road was moved to beyond 50 feet and no other chemicals or potential contaminants were stored or used within 50 feet of the wellhead, then the overall rating for all contaminant categories would be reduced to moderate.

There are no significant water chemistry issues in the tested water. In July 1996, total coliform bacteria were detected in Well #1 and in August 1996 and March 1997, total coliform bacteria were detected in the distribution system, but there have been no bacterial detections since that time. The system uses a hypochlorite disinfection system that should be adequately maintained. No volatile organic chemicals (VOCs) or synthetic organic chemicals (SOCs) have ever been detected. The inorganic contaminants (IOCs) fluoride and nitrate have been detected, but at levels below the current maximum contaminant levels (MCLs) as set by the Environmental Protection Agency (EPA). Though there have not been chemical problems with the system water, Waha Glen Water District should be aware that the potential for contamination from the aquifer still exists.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Waha Glen Water District system, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Also, disinfection practices should be maintained. No chemicals should be stored or applied within the 50-foot radius of the wellheads. The Waha Glen Water District should look into removing the road that is approximately 30 feet from the well. If moving the road and fencing the wellhead to a 50-foot boundary is not possible, then a contingency plan should be established to deal with any contamination and possible spills from the road.

As much of the designated protection areas are outside the direct jurisdiction of the Waha Glen Water District, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations contain large urban land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are many transportation corridors through the delineations, the Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive source water assessment protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR WAHA GLEN WATER DISTRICT, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The local community, based on its own needs and limitations, should determine the decision as to the amount and types of information necessary to develop a drinking water protection program. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the Waha Glen Water District is comprised of one ground water well that serves approximately 80 people through approximately 37 connections. Water is pumped directly to a 60,000-gallon partly buried concrete reservoir. The well is located in Nez Perce County, to the south of the City of Lewiston (Figure 1).

There are no significant water problems currently affecting the Waha Glen Water District source water. The inorganic contaminants (IOCs) fluoride and nitrate have been detected, but at levels below the maximum contaminant levels (MCLs) as set by the EPA. No volatile organic contaminants (VOCs) or synthetic organic contaminants (SOCs) have been detected in the well water. In July 1996, total coliform bacteria were detected at the wellhead. In August 1996 and March 1997, total coliform bacteria were detected in the distribution system.

Defining the Zones of Contribution – Delineation

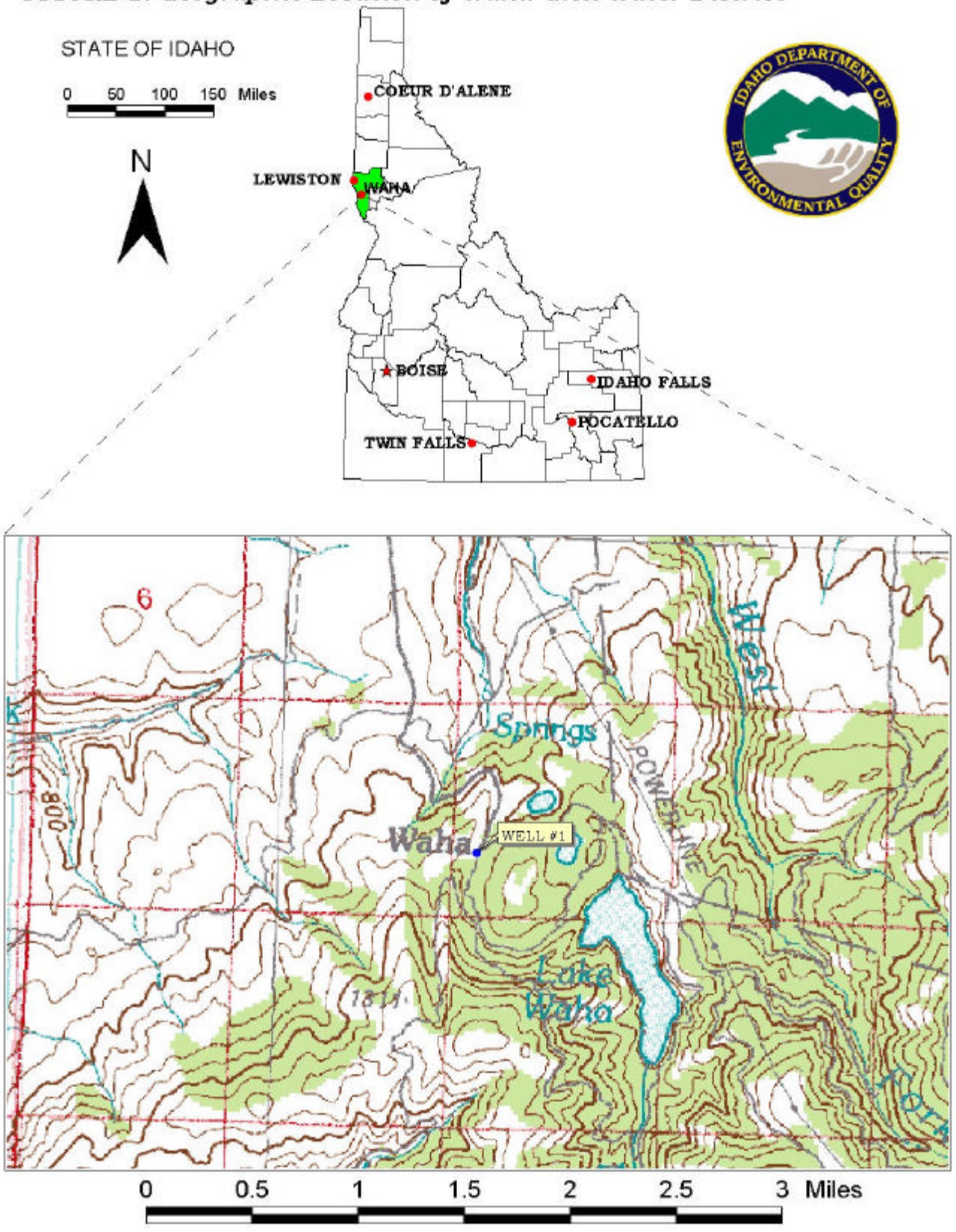
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with the University of Idaho to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the basalt aquifer of the Clearwater Plateau in the vicinity of the Waha Glen Water District well. The computer model used site specific data, assimilated by the University of Idaho from a variety of sources including the Waha Glen Water District operator input, local area well logs, and hydrogeologic reports (detailed below).

The conceptual hydrogeologic model for the area of the Waha Glen Water District source well is based on little known information and scarce data. The geologic map at a scale of 1:250,000 was used to interpret the geology (Rember and Bennett, 1979). Three nearby surface water bodies are thought to influence the ground water flow regime; these are Waha Lake, Blue Lake and Mud Lake. Based on well logs from the test points the source well is located in fractured basalt. No well log was found for the Waha Glen Water District well.

Wells located in basalt aquifers in northern Idaho produce up to 2,500 gallons per minute (gpm). Discharge from the Waha Glen Water District well is only 300 gpm. Most of the ground water found in basalts is present in the vesicular contact, fracture zones or in the sediments between basalt flows. Static water level data exist for all source wells.

Columbia River basalt covers the Waha Glen area near the source well and test points. The Lucile Group (older metasediments) is exposed to the southwest of Waha Glen Water District and consists of greenstone facies, calcareous shale, siliceous limestone, argillite and phyllite (Rember and Bennett, 1979). The contact between the basalt and the Lucille Group is a hydrogeologic barrier. Water recharges at the contact from precipitation but particularly at the locations where streams flow.

FIGURE 1. Geographic Location of Waha Glen Water District



The source well derives water the fractured basalt aquifer. The general direction of ground water flow is to the north-northwest toward the city of Lewiston if the data from the test points are assumed to be reliable.

The support references (Cohen and Ralston, 1980; EPA, 1988; and Rember and Bennett, 1979) conflict as to whether Waha lies within or outside of the Lewiston Aquifer basin. Based on the geologic map by Rember and Bennett (1979) and the report by Cohen and Ralston (1980) two structural features sandwich the town of Waha. The northern most feature is the Limekiln Fault and the southern most feature is the Craig Mountain Monocline. The EPA Support Document for Designation of the Lewiston Basin Aquifer as Sole Source Aquifer (2000) reiterates the existence of the fault; however, they place it to the southeast of Waha. According to Cohen and Ralston (1980), the fault forms a boundary to the Lewiston Aquifer at a regional scale. However, the hydraulic characteristics of the fault at a local scale are unknown. The direction of ground water flow is to the north-northwest based on the estimated locations of the test points.

No aquifer recharge data are available for the Waha area. In a study by Wyatt-Jaykim (1994) recharge to the central basin (Lewiston basin) was modeled as 1 inch/year; 2 inches/year was selected in the higher areas. Because the Waha Glen Water District lies at a higher elevation than part of the basin, precipitation rates are much higher, at a rate of about 25 inches/year versus 13 inches/year in Lewiston-Clarkston (Cohen and Ralston, 1980). Recharge is therefore expected to be greater. Lake Waha, Blue Lake and Mud Lake are at higher elevations than the water elevations at the test points indicating the lakes are recharging the aquifer.

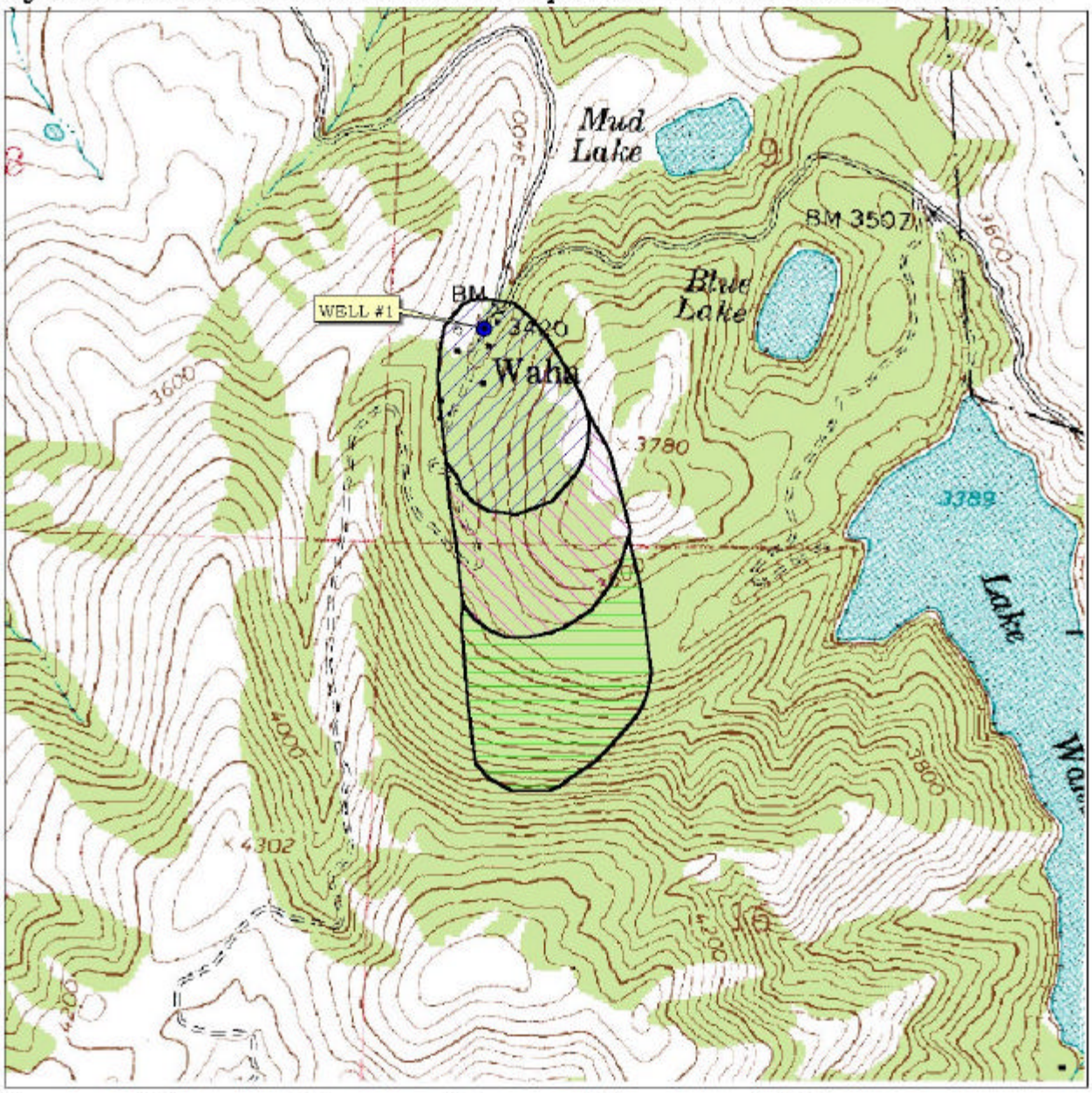
The delineated source water assessment area for the Waha Glen Water District well can best be described as an elliptical corridor that extends to the south. The Well #1 delineation is approximately 0.6-mile long and about 0.2-mile wide extending south (Figure 2). The actual data used by the University of Idaho in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the Waha Glen Water District wells consists of residential uses and a restaurant, while the surrounding area is predominantly undeveloped woodlands.

Figure 2. Waha Glen Water District Delineation Map and Potential Contaminant Source Locations



It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in October 2001. The first phase involved identifying and documenting potential contaminant sources within the Waha Glen Water District source water assessment area (Figure 2) through the use of computer databases and Geographic Information System maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The Well #1 delineation (Figure 2) has Waha Glen Road within 50 feet of the wellhead. In addition, the 10-year TOT contains logging activities that could add all categories of contamination to the aquifer.

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets for the system. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity is high for the well (Table 1). Regional soil data places the delineation within moderate to well drained soils. In addition, though there is no Waha Glen Water District well log, nearby well logs show that the vadose zone is made of fractured basalt and there are not sufficient low permeability interbeds, such as clay, in the basalt.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced. A sanitary survey was conducted in 1999.

Well #1 has a high system construction score. Well #1, drilled to a depth of 606 feet, has 10-inch casing installed to 175 feet below ground surface (bgs) and 8-inch casing installed to the bottom of the hole. No information was available as to the placement of the annular seal. The water level is about 464 feet bgs and the pump intake is set at 575 feet bgs. The sanitary survey states that the well is located in a twelve-foot deep concrete pit with casing extending 18 inches above the pit floor. The top of the casing contains many holes and the seal is "questionable."

A determination could not be made as to whether current public water system (PWS) construction standards are being met. Though the well may have been in compliance with standards when they were completed, current PWS well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter casing requires 0.322-inch thick casing. The well was assessed an additional point in the system construction rating.

Potential Contaminant Source and Land Use

The well rated low for IOCs (i.e. nitrates, arsenic), VOCs (i.e. petroleum products, chlorinated solvents), SOCs (i.e. pesticides), and microbial contaminants (i.e. bacteria). The lack of potential contaminant sources or agricultural land kept the scores low.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. In this case, the well automatically rated high for all types of contaminants due to the location of a road within 50 feet of the wellhead. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking.

Table 1. Summary of Waha Glen Water District Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
#1	H	L	L	L	L	H	H*[2]	H*	H*	H*

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility, IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

[2] H* = automatically rated high due to road within 50 feet of the wellhead

Susceptibility Summary

Overall, the well automatically rated high for all categories. If the road is moved to beyond 50 feet from the wellhead, and the 50-foot boundary is kept free from potential contaminant sources, then the overall rating would be reduced to moderate for all categories. Despite having high hydrologic sensitivity and high system construction, the lack of potential contaminant sources or agriculture would keep the scores moderate.

There are no significant water problems currently affecting the Waha Glen Water District source water. The IOCs fluoride and nitrate have been detected, but at levels below the MCLs as set by the EPA. No VOCs or SOCs have been detected in the well water. In July 1996, total coliform bacteria were detected at the wellhead. In August 1996 and March 1997, total coliform bacteria were detected in the distribution system.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Waha Glen Water District system drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Disinfection practices should be maintained and no chemicals should be stored or applied within the 50-foot radius of the wellheads. The Waha Glen Water District should look into removing the road that is approximately 30 feet from the well. If moving the road and fencing the wellhead to a 50-foot boundary is not possible, then a contingency plan should be established to deal with any contamination and possible spills from the road. As much of the designated protection areas are outside the direct jurisdiction of the Waha Glen Water District, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection. In addition, the well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations encompass many urban and even some commercial land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Lewiston Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Cohen, P.L. and Ralston, D.R.; 1980; Reconnaissance study of the "Russell" Basalt aquifer in the Lewiston Basin of Idaho and Washington, Research Technical Completion Report, Idaho Water Resources Research Institute, University of Idaho, 164p.

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Attachment A

Waha Glen Water District Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : WAHA GLEN WATER DIST Well# : WELL #1

Public Water System Number 2350030 12/04/2001 10:27:28 AM

1. System Construction		SCORE
Drill Date		
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	YES	1995
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	NO	1
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	YES	0
Well located outside the 100 year flood plain	NO	1
Total System Construction Score		5

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	YES	0
Aquitard present with > 50 feet cumulative thickness	NO	2
Total Hydrologic Score		5

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	YES	0	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	2	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		0	0	0	0
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		1	1	1	0
Cumulative Potential Contaminant / Land Use Score		1	1	3	0
4. Final Susceptibility Source Score		10	10	11	10
5. Final Well Ranking		High	High	High	High